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Universality of radiative corrections to gauge couplings for strings with spontaneously broken supersymmetry

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I will present recent work on computing radiative corrections to non-abelian gauge couplings in four-dimensional heterotic vacua with spontaneously broken supersymmetry. They may be considered as K3 surfaces with additional Scherk-Schwarz fluxes responsible for the spontaneous $N=4 \rightarrow N=0$ breaking. Remarkably, although the gauge thresholds are no longer BPS protected and receive contributions also from the excitations of the RNS sector, we find that their difference is still BPS saturated and exhibits a universal behaviour. Contrary to the case of unbroken supersymmetry, the non-abelian gauge thresholds develop infrared logarithmic singularities due to charged BPS-like states originating from the twisted RNS sector becoming massless at special points of the classical moduli space.

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